

**ATTACHMENT R**  
**SUPPORT**  
**37 C.F.R. §§41.202 (a)(5) and (a)(6)**

This application is a continuation of U.S. Patent no. 6,341,235 (herein, the '235 Patent) filed October 18, 2000, which is a continuation-in-part of U.S. Patent no. 6,136,019 (herein, the '019 Patent) filed January 16, 1998, which is a continuation-in-part of U.S. patent U.S. Patent no. 5,871,506 filed August 19, 1996 (herein, the '506 Patent). The applications giving rise to the patents in the priority chain of the present application have been incorporated by reference into the application, in their entirety, for all purposes. Additionally, the priority claim of the '235 Patent claims priority from the '019 Patent. The priority claim of the '019 Patent claims priority from the '506 Patent.

<u><b>CLAIM 12</b></u>	<u><b>SUPPORT</b></u>
Apparatus comprising circuitry	Application: Pacemaker electronics needed to practice the method of the present invention are well known to those skilled in the art. Current pacemaker electronics are capable of being programmed to deliver a variety of pulses, including those disclosed herein. (Application, ¶0025.)  Text disclosed in the '235 Patent at Col. 4, lines 28-32.  Text disclosed in the '019 Patent at Col. 4, lines 25-19.  Text disclosed in the '506 Patent at Col. 4, lines 22-26.
for creating a non-excitatory electric potential between at least two points located in the vicinity of a muscle,	Application: ... the first phase of stimulation is an anodal pulse at maximum subthreshold amplitude for a long duration, ....(Application, ¶0025.) Electrical "current," disclosed in ¶¶ 005 and 0008 inherently requires an electric potential between two locations in order to flow.  Text disclosed in the '235 Patent at Col. 4, lines

<p>comprising circuitry for controlling the start time and/or the duration of the electric potential generated between said at least two points which is synchronized to heart activity,</p> <p>said non-excitatory electric potential being a first phase of a bi-phasic pacing pulse.</p>	<p>45-47. Current described, for example, at Col. 1, lines 48-60.</p> <p>Text disclosed in the '019 Patent at Col. 4, lines 42-45. Current described, for example, at Col. 1, lines 44-56.</p> <p>Text disclosed in the '506 Patent at Col. 4, lines 14-16. Current described, for example, at Col. 1, lines 33-45.</p> <p>Application: ...each stimulation phase having a polarity, amplitude, shape and duration.... ...the first phase is administered over 200 milliseconds after completion of a cardiac beating/pumping cycle. (Application, ¶0025.)</p> <p>Text disclosed in the '235 Patent at Col. 4, lines 34-36 and lines 43-45.</p> <p>Text disclosed in the '019 Patent at Col. 4, lines 31-33 and lines 40-42.</p> <p>First part of text disclosed in the '506 Patent at Col. 4, lines 2-4. '506 Patent discloses, the first phase is administered over 200 milliseconds post heart beat." Col. 4, lines 11-12.</p> <p>Application: The anodal stimulation component of biphasic electrical stimulation augments cardiac contractility by hyperpolarizing the tissue prior to excitation...." (Application, ¶0052.)</p> <p>Text disclosed in the '235 Patent at Col. 8, lines 18-21.</p> <p>Text disclosed in the '019 Patent at Col. 9, lines 48-51.</p> <p>Text disclosed in the '506 Patent at Col. , lines 62-65.</p>
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	<p>Text disclosed in the '235 Patent at Col. 8, lines 18-21.</p> <p>Text disclosed in the '019 Patent at Col. 9, lines 48-51.</p> <p>Text disclosed in the '506 Patent at Col. 7, lines 62-65.</p>
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<b><u>CLAIM 14</u></b>	<b><u>SUPPORT</u></b>
<p>Apparatus</p> <p>for varying conduction velocity of a muscle,</p> <p>comprising circuitry for creating a non-excitatory electric potential between at least two points located in the vicinity of the muscle,</p>	<p>Application: Pacemaker electronics needed to practice the method of the present invention are well known to those skilled in the art. Current pacemaker electronics are capable of being programmed to deliver a variety of pulses, including those disclosed herein. (Application, ¶0025.)</p> <p>Text disclosed in the '235 Patent at Col. 4, lines 28-32.</p> <p>Text disclosed in the '019 Patent at Col. 4, lines 25-19.</p> <p>Text disclosed in the '506 Patent at Col. 4, lines 22-26.</p> <p>Application: See variation of conduction velocity illustrated in Figure 6;</p> <p>See variation of conduction velocity illustrated in Figure 6 of the '235 Patent.</p> <p>See variation of conduction velocity illustrated in Figure 6 of the '019 Patent.</p> <p>See variation of conduction velocity illustrated in Figure 6 of the '506 Patent.</p> <p>Application: Electrical "current," disclosed in ¶¶ 005 and 0008 inherently requires an electric potential between two locations in order to flow. ... the first phase of stimulation is an anodal pulse at maximum subthreshold amplitude for a long duration, ....(Application, ¶0025.)</p> <p>Current described, for example, at Col. 1, lines 48-60. Text disclosed in the '235 Patent at Col. 4, lines 45-47.</p>

<p>and comprising circuitry for controlling the start time and/or duration of the electric current flowing between said at least two points which is synchronized to heart activity,</p> <p>said non-excitatory electric potential being a first phase of a bi-phasic pacing pulse.</p>	<p>Current described, for example, at Col. 1, lines 44-56. Text disclosed in the '019 Patent at Col. 4, lines 42-45.</p> <p>Current described, for example, at Col. 1, lines 33-45. Text disclosed in the '506 Patent at Col. 4, lines 14-16.</p> <p>Application: ....each stimulation phase having a polarity, amplitude, shape and duration.... ....the first phase is administered over 200 milliseconds after completion of a cardiac beating/pumping cycle. (Application, ¶0025.)</p> <p>Text disclosed in the '235 Patent at Col. 4, lines 34-36 and lines 43-45.</p> <p>Text disclosed in the '019 Patent at Col. 4, lines 31-33 and lines 40-42.</p> <p>First part of text disclosed in the '506 Patent at Col. 4, lines 2-4. '506 Patent discloses, the first phase is administered over 200 milliseconds post heart beat." Col. 4, lines 11-12.</p> <p>Application: The anodal stimulation component of biphasic electrical stimulation augments cardiac contractility by hyperpolarizing the tissue prior to excitation...." (Application, ¶0052.)</p> <p>Text disclosed in the '235 Patent at Col. 8, lines 18-21.</p> <p>Text disclosed in the '019 Patent at Col. 9, lines 48-51.</p> <p>Text disclosed in the '506 Patent at Col. 7, lines 62-65.</p>
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<p>means for controlling the start time, duration and magnitude of the non-excitatory electric potential and/or of the non-excitatory electric current flowing between said at least two points.</p>	<p>In the '506 Patent current described, for example, at Col. 1, lines 33-45.</p> <p>Application: ... the first phase of stimulation is an anodal pulse at maximum subthreshold amplitude for a long duration, ....(Application, ¶0025.) ....each stimulation phase having a polarity, amplitude, shape and duration....(Application, ¶0025.)</p> <p>Text disclosed in the '235 Patent at Col. 4, lines 45-47 and at Col. 4, lines 34-36.</p> <p>Text disclosed in the '019 Patent at Col. 4, lines 42-45 and at Col. 4, lines 31-33.</p> <p>Text disclosed in the '506 Patent at Col. 4, lines 14-16 and at Col. 4, lines 2-4.</p>
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<u><b>CLAIM 17</b></u>	<u><b>SUPPORT</b></u>
<p>A method for varying conduction velocity of a muscle,</p> <p>comprising creating a non-excitatory electric potential between at least two points located in the vicinity of the muscle, and</p> <p>controlling one or more of the parameters consisting of start time, duration, magnitude and polarity of the non-excitatory electric potential created between said at least two points.</p>	<p>Application:  See variation of conduction velocity illustrated in Figure 6;</p> <p>See variation of conduction velocity illustrated in Figure 6 of the '235 Patent.</p> <p>See variation of conduction velocity illustrated in Figure 6 of the '019 Patent.</p> <p>See variation of conduction velocity illustrated in Figure 6 of the '506 Patent.</p> <p>Application:  Electrical "current," disclosed in ¶¶ 005 and 0008 inherently requires an electric potential between two locations in order to flow.  ... the first phase of stimulation is an anodal pulse at maximum subthreshold amplitude for a long duration, ....(Application, ¶0025.)</p> <p>Current described, for example, at Col. 1, lines 48-60. Text disclosed in the '235 Patent at Col. 4, lines 45-47.</p> <p>Current described, for example, at Col. 1, lines 44-56. Text disclosed in the '019 Patent at Col. 4, lines 42-45.</p> <p>Current described, for example, at Col. 1, lines 33-45. Text disclosed in the '506 Patent at Col. 4, lines 14-16.</p> <p>Application:  ....each stimulation phase having a polarity, amplitude, shape and duration....  ...the first phase is administered over 200 milliseconds after completion of a cardiac beating/pumping cycle. (Application, ¶0025.)</p>

	<p>Text disclosed in the '235 Patent at Col. 4, lines 34-36 and lines 43-45.</p> <p>Text disclosed in the '019 Patent at Col. 4, lines 31-33 and lines 40-42.</p> <p>First part of text disclosed in the '506 Patent at Col. 4, lines 2-4. '506 Patent discloses, the first phase is administered over 200 milliseconds post heart beat." Col. 4, lines 11-12.</p>
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<u><b>CLAIM 18</b></u>	<u><b>SUPPORT</b></u>
A method for varying conduction velocity of a muscle,	<p>Application: See variation of conduction velocity illustrated in Figure 6;</p> <p>See variation of conduction velocity illustrated in Figure 6 of the '235 Patent.</p> <p>See variation of conduction velocity illustrated in Figure 6 of the '019 Patent.</p> <p>See variation of conduction velocity illustrated in Figure 6 of the '506 Patent.</p>
comprising causing a non-excitatory electric current to flow between at least two points located in the vicinity of the muscle	<p>Application: Electrical "current," disclosed in ¶¶ 005 and 0008 inherently requires an electric potential between two locations in order to flow. ... the first phase of stimulation is an anodal pulse at maximum subthreshold amplitude for a long duration, ....(Application, ¶0025.)</p> <p>Current described, for example, at Col. 1, lines 48-60. Text disclosed in the '235 Patent at Col. 4, lines 45-47.</p> <p>Current described, for example, at Col. 1, lines 44-56. Text disclosed in the '019 Patent at Col. 4, lines 42-45.</p>

<p>as a first phase of a bi-phasic stimulation pulse, and</p>	<p>Current described, for example, at Col. 1, lines 33-45. Text disclosed in the '506 Patent at Col. 4, lines 14-16.</p> <p>The anodal stimulation component of biphasic electrical stimulation augments cardiac contractility by hyperpolarizing the tissue prior to excitation...." (Application, ¶0052.)</p> <p>Text disclosed in the '235 Patent at Col. 8, lines 18-21.</p> <p>Text disclosed in the '019 Patent at Col. 9, lines 48-51.</p> <p>Text disclosed in the '506 Patent at Col. , lines 62-65.</p>
<p>controlling one or more of the parameters consisting of start time, duration, magnitude and polarity of the non-excitatory electric current flowing between said at least two points.</p>	<p>Application: ....each stimulation phase having a polarity, amplitude, shape and duration.... ....the first phase is administered over 200 milliseconds after completion of a cardiac beating/pumping cycle. (Application, ¶0025.)</p> <p>Text disclosed in the '235 Patent at Col. 4, lines 34-36 and lines 43-45.</p> <p>Text disclosed in the '019 Patent at Col. 4, lines 31-33 and lines 40-42.</p> <p>First part of text disclosed in the '506 Patent at Col. 4, lines 2-4. '506 Patent discloses, the first phase is administered over 200 milliseconds post heart beat." Col. 4, lines 11-12.</p>

<b><u>CLAIM 19</u></b>	<b><u>SUPPORT</u></b>
A method according to claim 17 or 18, wherein the muscle is a cardiac muscle.	<p>Application: In this fashion, pulse conduction through the cardiac muscle is improved...(Application, Abstract.)</p> <p>Text disclosed in the Abstract of the '235 Patent, except that the word "improved" is printed as "unproved."</p> <p>Text disclosed in the Abstract of the '019 Patent, except that the word "improved" is printed as "unproved."</p> <p>Text disclosed in the Abstract of the '506 Patent.</p>

<b><u>CLAIM 20</u></b>	<b><u>SUPPORT</u></b>
A method according to claim 18, wherein the non-excitatory electric current is a DC current.	<p>Application: Sometimes a patient suffering from a conduction disorder can be helped by an artificial pacemaker. Such a device contains a small battery powered electrical stimulator. (Application, ¶0007.) "Current flow" from a "small battery powered electrical stimulator" is inherently direct current ("DC").</p> <p>Text disclosed in the '235 Patent at Col. 2, lines 1-3.</p> <p>Text disclosed in the '019 Patent at Col. 1, lines 64-66.</p> <p>Text disclosed in the '506 Patent at Col. 1, lines 53-55.</p>

**REQUEST FOR INTERFERENCE****Appln. No. 10/053,750****PATENT APPLICATION**

<b><u>CLAIM 22</u></b>	<b><u>SUPPORT</u></b>
<p>A method according to claim 18, wherein the flow of the non-excitatory DC electric current is synchronized to heart activity.</p>	<p>Application: ...the first phase is administered over 200 milliseconds after completion of a cardiac beating/pumping cycle. (Application, ¶0025.)</p> <p>Text disclosed in the '235 Patent at Col. 4, lines 43-45.</p> <p>Text disclosed in the '019 Patent at Col. 4, lines 40-42.</p> <p>'506 Patent discloses, the first phase is administered over 200 milliseconds post heart beat." ('506 Patent, Col. 4, lines 11-12.)</p>

<b><u>CLAIM 24</u></b>	<b><u>SUPPORT</u></b>
<p>A method for performing heart treatment, comprising</p> <p>varying conduction velocity of a treated area of the cardiac muscle,</p> <p>by creating a non-excitatory electric potential between at least two points located in the vicinity of the muscle, and</p>	<p>Application: Sometimes a patient suffering from a conduction disorder can be helped by an artificial pacemaker. (Application, ¶0007.)</p> <p>Text disclosed in the '235 Patent at Col. 2, lines 1-2.</p> <p>Text disclosed in the '019 Patent at Col. 1, lines 64-65.</p> <p>Text disclosed in the '506 Patent at Col. 1, lines 53-54.</p> <p>Application: See variation of conduction velocity illustrated in Figure 6;</p> <p>See variation of conduction velocity illustrated in Figure 6 of the '235 Patent.</p> <p>See variation of conduction velocity illustrated in Figure 6 of the '019 Patent.</p> <p>See variation of conduction velocity illustrated in Figure 6 of the '506 Patent.</p> <p>Application: Electrical "current," disclosed in ¶¶ 005 and 0008 inherently requires an electric potential between two locations in order to flow. ... the first phase of stimulation is an anodal pulse at maximum subthreshold amplitude for a long duration, ....(Application, ¶0025.)</p> <p>Current described, for example, at Col. 1, lines 48-60. Text disclosed in the '235 Patent at Col. 4, lines 45-47.</p> <p>Current described, for example, at Col. 1, lines 44-56. Text disclosed in the '019 Patent at Col.</p>

<p>controlling one or more of the parameters consisting of start time, duration, magnitude and polarity of the non-excitatory electric potential created between said at least two points, thereby to obtain the desired variation in conduction velocity at the treated heart area and thereafter performing treatment thereon.</p>	<p>4, lines 42-45.</p> <p>Current described, for example, at Col. 1, lines 33-45. Text disclosed in the '506 Patent at Col. 4, lines 14-16.</p> <p>Application: ....each stimulation phase having a polarity, amplitude, shape and duration.... ....the first phase is administered over 200 milliseconds after completion of a cardiac beating/pumping cycle. (Application, ¶0025.)</p> <p>Text disclosed in the '235 Patent at Col. 4, lines 34-36 and lines 43-45.</p> <p>Text disclosed in the '019 Patent at Col. 4, lines 31-33 and lines 40-42.</p> <p>First part of text disclosed in the '506 Patent at Col. 4, lines 2-4. '506 Patent discloses, the first phase is administered over 200 milliseconds post heart beat." Col. 4, lines 11-12.</p>
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<p>controlling one or more of the parameters consisting of start time, duration, magnitude and polarity of the non-excitatory electric current flowing between said at least two points, thereby to obtain the desired variation in conduction velocity at the treated heart area and thereafter performing treatment thereon.</p>	<p>4, lines 42-45.</p> <p>Current described, for example, at Col. 1, lines 33-45. Text disclosed in the '506 Patent at Col. 4, lines 14-16.</p> <p>Application: ....each stimulation phase having a polarity, amplitude, shape and duration... (Application, ¶0025.)</p> <p>Text disclosed in the '235 Patent at Col. 4, lines 34-36.</p> <p>Text disclosed in the '019 Patent at Col. 4, lines 31-33.</p> <p>Text disclosed in the '506 Patent at Col. 4, lines 2-4.</p>
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<b><u>CLAIM 34</u></b>	<b><u>SUPPORT</u></b>
<p>A method for performing cardiac treatment, comprising</p>	<p>Application: Sometimes a patient suffering from a conduction disorder can be helped by an artificial pacemaker. (Application, ¶0007.)</p> <p>Text disclosed in the '235 Patent at Col. 2, lines 1-2.</p> <p>Text disclosed in the '019 Patent at Col. 1, lines 64-65.</p> <p>Text disclosed in the '506 Patent at Col. 1, lines 53-54.</p>
<p>varying conduction velocity of the area of the cardiac muscle to be treated,</p>	<p>Application: See variation of conduction velocity illustrated in Figure 6;</p> <p>See variation of conduction velocity illustrated in Figure 6 of the '235 Patent.</p> <p>See variation of conduction velocity illustrated in Figure 6 of the '019 Patent.</p> <p>See variation of conduction velocity illustrated in Figure 6 of the '506 Patent.</p>
<p>by creating a non-excitatory electric potential between at least two points located in the vicinity of the muscle, and</p>	<p>Application: Electrical "current," disclosed in ¶¶ 005 and 0008 inherently requires an electric potential between two locations in order to flow. ... the first phase of stimulation is an anodal pulse at maximum subthreshold amplitude for a long duration, ....(Application, ¶0025.)</p> <p>Current described, for example, at Col. 1, lines 48-60. Text disclosed in the '235 Patent at Col. 4, lines 45-47.</p> <p>Current described, for example, at Col. 1, lines 44-56. Text disclosed in the '019 Patent at Col.</p>

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<p>controlling one or more of the parameters consisting of start time, duration, magnitude and polarity of the non-excitatory electric potential created between said at least two points, thereby to obtain the desired variation in conduction velocity at the heart area to be treated, and thereafter performing the treatment thereon.</p>	<p>4, lines 42-45.</p> <p>Current described, for example, at Col. 1, lines 33-45. Text disclosed in the '506 Patent at Col. 4, lines 14-16.</p> <p>Application: ....each stimulation phase having a polarity, amplitude, shape and duration... (Application, ¶0025.)</p> <p>Text disclosed in the '235 Patent at Col. 4, lines 34-36.</p> <p>Text disclosed in the '019 Patent at Col. 4, lines 31-33.</p> <p>Text disclosed in the '506 Patent at Col. 4, lines 2-4.</p>
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<p>controlling one or more of the parameters consisting of start time, duration, magnitude and polarity of the non-excitatory electric current flowing between said at least two points, thereby to obtain the desired variation in conduction velocity at the heart area to be treated, and thereafter performing the treatment thereon.</p>	<p>4, lines 42-45.</p> <p>Current described, for example, at Col. 1, lines 33-45. Text disclosed in the '506 Patent at Col. 4, lines 14-16.</p> <p>Application:  ....each stimulation phase having a polarity, amplitude, shape and duration... (Application, ¶0025.)</p> <p>Text disclosed in the '235 Patent at Col. 4, lines 34-36.</p> <p>Text disclosed in the '019 Patent at Col. 4, lines 31-33.</p> <p>Text disclosed in the '506 Patent at Col. 4, lines 2-4.</p>
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<u><b>CLAIM 36</b></u>	<u><b>SUPPORT</b></u>
<p>A method according to any one of claims 25 or 35, wherein the non-excitatory electric current is a DC current.</p>	<p>Application:  Sometimes a patient suffering from a conduction disorder can be helped by an artificial pacemaker. Such a device contains a small battery powered electrical stimulator. (Application, ¶0007.)  “Current flow” from a “small battery powered electrical stimulator” is inherently direct current (“DC”).</p> <p>Text disclosed in the '235 Patent at Col. 2, lines 1-3.</p> <p>Text disclosed in the '019 Patent at Col. 1, lines 64-66.</p> <p>Text disclosed in the '506 Patent at Col. 1, lines 53-55.</p>

<b><u>CLAIM 38</u></b>	<b><u>SUPPORT</u></b>
A method according to any one of claims 25 or 35, wherein the flow of the non-excitatory DC electric current is synchronized to heart activity.	<p>Application: ...the first phase is administered over 200 milliseconds after completion of a cardiac beating/pumping cycle. (Application, ¶0025.)</p> <p>Text disclosed in the '235 Patent at Col. 4, lines 43-45.</p> <p>Text disclosed in the '019 Patent at Col. 4, lines 40-42.</p> <p>'506 Patent discloses, the first phase is administered over 200 milliseconds post heart beat." ('506 Patent, Col. 4, lines 11-12.)</p>

<u>CLAIM 47</u>	<u>SUPPORT</u>
<p>A method for varying conduction velocity of a muscle, comprising:</p>	<p>Application: See variation of conduction velocity illustrated in Figure 6;</p> <p>See variation of conduction velocity illustrated in Figure 6 of the '235 Patent.</p> <p>See variation of conduction velocity illustrated in Figure 6 of the '019 Patent.</p> <p>See variation of conduction velocity illustrated in Figure 6 of the '506 Patent.</p>
<p>providing means for creating an electric potential between at least two points located in the vicinity of the muscle; providing means for causing a non-excitatory DC electric current to flow between said at least two point;</p>	<p>Application: Electrical "current," disclosed in ¶¶ 005 and 0008 inherently requires an electric potential between two locations in order to flow. ... the first phase of stimulation is an anodal pulse at maximum subthreshold amplitude for a long duration, ....(Application, ¶0025.)</p> <p>Current described, for example, at Col. 1, lines 48-60. Text disclosed in the '235 Patent at Col. 4, lines 45-47.</p> <p>Current described, for example, at Col. 1, lines 44-56. Text disclosed in the '019 Patent at Col. 4, lines 42-45.</p> <p>Current described, for example, at Col. 1, lines 33-45. Text disclosed in the '506 Patent at Col. 4, lines 14-16.</p>
<p>providing means for switching the current polarity between said at least two points; and providing means for controlling the start time, duration and magnitude of the electric current flowing between said at least two points.</p>	<p>Application: ....each stimulation phase having a polarity, amplitude, shape and duration.... ....the first phase is administered over 200 milliseconds after completion of a cardiac beating/pumping cycle. (Application, ¶0025.)</p>

	<p>Text disclosed in the '235 Patent at Col. 4, lines 34-36 and lines 43-45.</p> <p>Text disclosed in the '019 Patent at Col. 4, lines 31-33 and lines 40-42.</p> <p>First part of text disclosed in the '506 Patent at Col. 4, lines 2-4. '506 Patent discloses, the first phase is administered over 200 milliseconds post heart beat." Col. 4, lines 11-12.</p>
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<b><u>CLAIM 50</u></b>	<b><u>SUPPORT</u></b>
<p>A method according to claim 47 or 48, wherein the means for causing a non-excitatory DC electric current to flow, are synchronized to heart activity.</p>	<p>Application: ...the first phase is administered over 200 milliseconds after completion of a cardiac beating/pumping cycle. (Application, ¶0025.)</p> <p>Text disclosed in the '235 Patent at Col. 4, lines 43-45.</p> <p>Text disclosed in the '019 Patent at Col. 4, lines 40-42.</p> <p>'506 Patent discloses, the first phase is administered over 200 milliseconds post heart beat." ('506 Patent, Col. 4, lines 11-12.)</p>